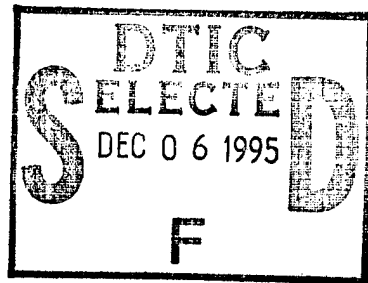

Logistics Management Institute

Improving the Quality of Personal
Property Data for the Defense
Transportation Payment Program

DF301LN7



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Alfred H. Beyer

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December 1994

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Improving the Quality of Personal Property Data for the Defense Transportation Payment Program

Executive Summary

Quality shipment data are the backbone of DoD's operating concept for auditing and paying personal property transportation bills electronically. The Defense Finance and Accounting Service – Indianapolis Center (DFAS-IN) depends on timely and accurate electronic data from Personal Property Shipment Offices (PPSOs) to avoid payment of carrier overcharges, payment of interest charges, and manual processing to correct inaccurate data.

The current personal property data that PPSOs generate and transmit to DFAS-IN through the Transportation Operational Personal Property Standard System (TOPS) suffers from a number of data problems:

- ◆ One of seven test PPSOs stopped using the inbound module of TOPS to clear shipments for delivery. We are concerned this finding may not be an isolated case, which would severely hinder DFAS-IN's efforts to automate the personal property payment process.
- ◆ DFAS-IN needs some data elements that were not originally given as a requirement to the TOPS-Program Management office (TOPS-PM).
- ◆ Reweigh data, critical to costing transportation linehaul charges, are seldom transmitted to DFAS-IN because the data exchange is triggered by PPSOs printing a DD 1671, which is no longer used.
- ◆ Thirty-eight percent of TOPS reweigh records do not include reweigh net weight because either the carriers are not returning required documentation to the PPSOs or PPSOs are not processing reweigh information through TOPS.
- ◆ PPSOs are entering little additional service data into TOPS because they are not required to do so. The absence of those data could require the continued use of the paper DD 619 and inhibit carriers from submitting invoices electronically.
- ◆ Nineteen percent of all personal property shipment records transmitted to DFAS-IN have at least one pickup or delivery address city name that does not match the city name in Rand McNally's Mile Maker, the transportation industry's standard mileage source. When those names do not match, DFAS-IN must determine shipment mileage manually. In addition,

36 percent of additional pickup or delivery address information is not useful to DFAS-IN because it is either missing or invalid.

- ◆ Twenty-one percent of all shipments requiring storage-in-transit are not cleared out of storage because TOPS cannot accommodate a partial delivery from storage to residence.
- ◆ Thirteen percent of all TOPS outbound shipment records report a different origin net weight from that recorded on the government bill of lading primarily because carriers are not returning documentation to the origin PPSO.

Although the DoD has a number of problems with personal property data, we believe that it can correct most of them by taking the following actions:

- ◆ *TOPS data entry requirements.* Some PPSOs are not following data-entry procedures for TOPS. To correct this situation, we recommend the Military Traffic Management Command (MTMC) request the Military Services to direct their PPSOs comply with established procedures, particularly those associated with processing reweigh information, and follow up with carriers that do not return origin and reweigh weight information.
- ◆ *PPSO training.* Some PPSOs are not using TOPS correctly, so they are introducing data problems into the process. We recommend TOPS-PM distribute training material to the Military Services that address procedures for entering reweigh data when a partial delivery out of storage-in-transit occurs, deleting additional pickup and delivery information, and entering origin weight information when weights are not available from carriers.
- ◆ *TOPS system enhancements.* Several enhancements to TOPS are required before an automated personal property payment system (Defense Transportation Payment System, or DTRS) becomes a reality for the DoD. We recommend TOPS-PM modify TOPS to accommodate several new data elements, such as weight into storage and weight out of storage; prepare management reports that identify shipments without origin and reweigh net weights; perform edits of weight data; and include a file of valid accounting classification numbers.
- ◆ *DTRS system enhancements.* We recommend DFAS-IN modify DTRS to accommodate the carrier's electronic submission of additional service data until PPSOs can be relied upon to provide the data or until DoD reengineers its business practices.
- ◆ *Policy changes.* DoD policies governing the movement of personal property are also contributing to the problems with personal property data. We recommend MTMC propose policy that requires PPSOs to use TOPS, including the entry of additional services data into the system.
- ◆ *Business process changes.* DoD uses a number of outdated personal property business practices that are major contributors to the data problems. We

recommend MTMC reengineer the DoD's personal property business practices to eliminate the need for free-form address data when calculating transportation charges and to minimize the number of additional services.

Some of these actions — particularly the TOPS enhancements — should be accomplished before DFAS-IN implements Phase 3, Personal Property electronic data interchange (EDI), of DTRS, which is scheduled for the second quarter FY95. In addition, DFAS-IN should restrict early implementation of DTRS to its two test carriers and exclude storage agent bills, primarily because a wider implementation would result in excessive manual processing. Finally, the proposed actions with the most potential for reducing the DoD's data problems are reengineering the business practices and requiring PPSOs to use TOPS as intended.

In summary, accurate and timely data from TOPS is key to DFAS-IN automating its personal property payment process. Our recommendations for improving the quality of those data present a comprehensive course for the DoD to follow over the next several months.

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IMPROVING THE QUALITY OF PERSONAL PROPERTY DATA FOR THE DEFENSE TRANSPORTATION PAYMENT PROGRAM

INTRODUCTION

Background

The Defense Finance and Accounting Service – Indianapolis Center (DFAS-IN) has launched an aggressive program to implement a new transportation payment system – Defense Transportation Payment System (DTRS). That effort is driven by a DoD policy to maximize the use of electronic data interchange (EDI) techniques and a transportation cost reduction initiative to minimize overbillings and erroneous charges through expanded use of prepayment audits.

Defense Management Review Decision 941 estimated the DoD could save \$800,000 annually by replacing personal property government bills of lading (GBLs), public vouchers, and other invoice-supporting documents with EDI. Another Defense Management Review Decision, 915, identified an additional \$22 million in annual savings if DFAS-IN implemented a prepayment audit program for personal property transportation bills. DFAS-IN plans to use DTRS to begin paying domestic code 1 (door-to-door movement of household goods in a motor van) and code 2 (door-to-door movement of household goods in a container) transportation bills in the second quarter FY95.

Electronic Operating Concept

DFAS-IN's ability to pay personal property transportation bills electronically is dependent on two Military Traffic Management Command (MTMC) systems: Transportation Operational Personal Property Standard System (TOPS) and Worldwide Household Goods Information System for Transportation (WHIST). TOPS automates operations at 153 Military Service personal property shipping offices (PPSOs) in the continental United States (CONUS) and Alaska. Those PPSOs generate approximately 200,000 domestic household goods shipments annually.¹ PPSOs enter data pertaining to a member's move into TOPS, which then forwards that data to WHIST. In turn, WHIST assigns rates and other shipment information to the data and then forwards the updated information to commercial carriers and DTRS.

¹TOPS is currently being installed at overseas shipping offices, which should be completed in 1996.

After receiving the information from WHIST, DTRS determines the costs of services that the PPSOs ordered, matches those costs against the charges submitted by the carriers, authorizes payment to the carriers, processes member entitlements, and forwards all information associated with the movement to the General Services Administration (GSA), which then performs a postpayment audit. Figure 1 shows how TOPS, WHIST, DTRS, carriers, and GSA are linked electronically.

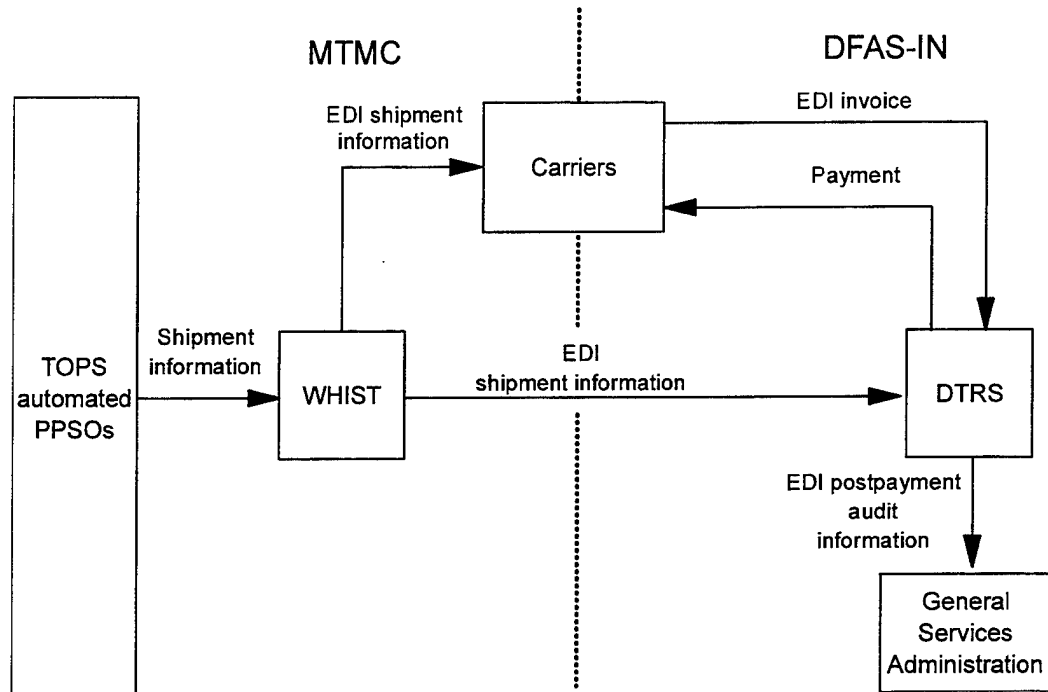


Figure 1.
Personal Property Transportation Payment Electronic Operating Concept

Importance of Timely and Accurate TOPS Data

Payment-related data, which consists primarily of TOPS shipment information, enables DFAS-IN to audit and pay carrier invoices. However, according to Federal law, DFAS-IN has 30 days from receipt of a carrier's invoice to pay the carrier before it incurs interest charges. A carrier may bill DFAS-IN immediately upon providing the service, but it has 14 days to submit required documentation to the destination PPSO. As a consequence, nearly half of DFAS-IN's payment time may already be consumed before the PPSO can enter data into TOPS.

DFAS-IN can gain the benefits expected from the use of DTRS only if it receives accurate and timely data from TOPS and WHIST. Without accurate data, DFAS-IN is forced to process bills manually, but it does not have the resources

to do so. In addition, all overcharges paid to carriers that GSA eventually discovers during its postpayment audits belong to the U.S. Treasury, not to DoD.

Current regulations state that the DoD's disbursing officers are not personally liable for inaccurate payments to carriers because of GSA's postpayment audits. However, new legislation that GSA is proposing threatens to eliminate its responsibility for postpayment audit. If that occurs, DFAS-IN will be even more dependent on accurate and timely data from the PPSOs.

LMI Task

Although the electronic link between MTMC and DFAS-IN is new and still undergoing integration testing, experience shows that some of the personal property shipment information that DFAS-IN requires from TOPS is often incomplete and inaccurate. In some cases, the data are not even available from TOPS.

As a result of these shortcomings, MTMC and DFAS-IN tasked LMI to identify the problems associated with the electronic transmission of personal property payment data from TOPS and WHIST to DTRS, and to develop recommendations for improving the quality of those data.

To satisfy that tasking, we adopted a three-step study approach. First, with assistance from DFAS-IN, MTMC operations, and TOPS program management representatives, we selected a sample of personal property shipments from PPSOs. We then analyzed the shipment data, to include comparing the GBLs and other shipment documents with the corresponding TOPS data. Finally, we visited one of the PPSOs in the sample to validate our findings and determine the causes of the data problems.

We selected data from seven PPSOs representing all Military Services and a range of shipment volumes.² We then tested the capability of the TOPS application software to provide DFAS-IN with the required data. Since we did not extract data from either WHIST or DTRS, we could not test the communications between TOPS and WHIST or between WHIST and DFAS-IN. We also did not test whether WHIST formatted data into the EDI format that DTRS requires.

We limited our sample data to domestic household goods to correspond with DFAS-IN's initial production focus for DTRS. Altogether, we selected 18,000 base records, which represented approximately 9 percent of the seven

²The selected PPSOs and their Government Bill of Lading Office Codes (GBLOCs) are: Army – Fort Bragg, North Carolina (BKAS); Fort Lewis, Washington (JEAT); and Joint Personal Property Shipping Office Fort Dix, New Jersey (APAT); Air Force – Joint Personal Property Shipping Office Colorado Springs, Colorado (KKFA); and Robins Air Force Base, Georgia (CFFQ); Navy – Naval Air Station Brunswick, Maine (AANL); and Marine Corps – Camp Pendleton, California (LFMT).

PPSOs' domestic shipments.³ All shipments had requested pickup dates of September 1993, October 1993, February 1994, March 1994, and April 1994. We used those time periods because most of the shipments should have been delivered and their associated shipment records completed.

Report Contents

In the following section of this report, we describe the results of our data analysis and recommend a variety of actions to correct the associated deficiencies. Our corrective actions can be summarized as falling into one of five categories:

- ◆ *TOPS data entry requirements* – ensure PPSOs comply with TOPS data entry procedures
- ◆ *PPSO training* – provide PPSOs with additional training on the use of TOPS
- ◆ *TOPS system enhancements* – develop enhancements to TOPS application software
- ◆ *DTRS system enhancements* – develop enhancements to DTRS application software
- ◆ *Policy changes* – modify DoD policies to improve the PPSO's use of TOPS
- ◆ *Business process changes* – simplify and streamline the personal property business process, which should decrease the likelihood of deficient data being entered into TOPS.

In the final section, we discuss the impact of personal property data on DTRS implementation; we also summarize and prioritize the data quality improvement recommendations.

DATA QUALITY CONCERNS

We found four areas of concern with the quality of data

- ◆ PPSO use of TOPS,
- ◆ unplanned DFAS-IN data requirements,

³The "base file" contains all general shipment information not found in other specialized files, such as additional service; storage-in-transit (SIT); additional address; and reweigh files. It includes origin weight, accounting classification, and primary pickup and delivery addresses information.

- ◆ exchange of data between TOPS and WHIST, and
- ◆ missing or inaccurate data from PPSOs.

PPSO Use of TOPS

OVERVIEW

The PPSOs willingness to use TOPS is vital to the success of DoD's new payment program because EDI-capable carriers will no longer mail GBLs to DFAS-IN. TOPS is the only automated source of shipment information.

FINDINGS AND ANALYSIS

During the 5-month test period, the TOPS-Program Management (TOP-PM) office reported that one of the PPSOs stopped using the inbound module of TOPS (in 1994). As a consequence, 91 percent of the shipment records transmitted to the Joint Personal Property Shipping Office Fort Dix were not cleared, i.e., recorded as having arrived. In addition, some PPSOs may be using TOPS to process some shipments but not create GBLs for other shipments.

RECOMMENDATIONS

Our recommendations for increasing the PPSOs use of TOPS fall into two categories:

- ◆ *TOPS system enhancements.* TOPS-PM should prepare a periodic report that identifies activities not using TOPS. It should distribute the report to MTMC Headquarters, Military Services, PPSOs, and DFAS-IN.
- ◆ *Policy changes.* MTMC should sponsor changes to policy requiring PPSOs with TOPS to use it for processing all shipments. In the short term, MTMC should send memorandums to the Military Services asking for their cooperation in enforcing the use of TOPS.

Unplanned DFAS-IN Data Requirements

OVERVIEW

DFAS-IN has identified 47 payment-related data elements that it needs to audit and pay transportation bills. Those data elements are presented in Table 1. TOPS currently provides most of those data elements, but some have not been planned as requirements by TOPS. Some data elements have not been planned because they are associated with functional capabilities that are projected for future TOPS releases.

Table 1.
DFAS-IN Personal Property Payment Data Requirements

DTRS data requirements	Purpose	Comments
Carrier code [tendered carrier Standard Carrier Alpha Code (SCAC)]	Used to match shipment information with invoice and rate information.	Initially carriers will only be allowed to submit invoices for service codes 1 and 2 (domestic household goods).
Code of service	Used to identify types of personal property business and determine if carrier is approved for type of business.	
Member and spouse pay grades	Used to allocate shipment charges to appropriate accounting classification when military spouse and member move together.	
Pickup and delivery addresses city, state, and county	Used to calculate transportation charge and determine rates for when additional transportation charge or shipment less than 500 miles applies. Also used to determine rates for additional services.	Rand McNally Mile Maker used to determine miles.
Additional pickup and delivery addresses city, state, and county	Used to calculate transportation charges when additional pickup or delivery applies.	Rand McNally Mile Maker used to determine miles.
Origin and destination GBLOC	Used to determine rates for linehaul transportation and additional services.	This data element is not required if an abbreviated form of accounting classification is provided.
Accounting classification	Used to determine fund cite responsible for shipment charges.	
Movement designator code (MDC)	An abbreviated accounting classification the Army uses to identify the full accounting classification.	
Air Force Transportation Account Code (ATAC)	An abbreviated accounting classification the Air Force uses to identify the full accounting classification.	New TOPS data requirement.
Transportation Account Code (TAC)	An abbreviated accounting classification the Marine Corps uses to identify the full accounting classification.	Data requirement ending at end of FY95.
Navy Management Fund (NMF) Code	An abbreviated accounting classification the Navy uses to identify the full accounting classification.	
GBL number	Used to match shipment information with invoice information.	Information not important for service code 1 and 2 shipments.
Origin gross and reweigh weight	Used to calculate linehaul charges for unaccompanied baggage (UB) shipments. Reweigh weight is compared with origin weight to determine carrier overcharges.	

Table 1.
DFAS-IN Personal Property Payment Data Requirements (Continued)

DTRS data requirements	Purpose	Comments
Origin net and reweigh weights	Used to calculate linehaul and some additional service charges for non-UB shipments.	Reweigh weight is the total of all delivery weigh tickets including partial deliveries out of SIT.
Declared valuation amount	Used to calculate an additional service charge.	Must identify whether service occurred at origin or destination.
Additional service item number and identifier	Used to identify all authorized additional service items performed.	
Number of additional service item units performed	Used to calculate the cost of additional service items.	
Submitted additional service charge	Used to identify cost of additional service performed by a third party.	
Date additional service item performed	Used to determine if carrier has submitted a bill prior to performing service.	Used for information purpose only. Not critical to payment process.
SIT control number	Identifies individual storage services when a shipment is split into multiple parts and moved into storage at different times or places.	No capability has been agreed upon for TOPS to provide an extension of days SIT temporary storage authorized.
Days SIT temporary storage authorized	Used to determine the end of the Government's obligation to pay for storage charges.	
Date SIT placed in storage and date removed from storage	Used to establish the number of days a member's property was in storage. The number of days in storage affects the cost of the storage service.	
SIT weight into and SIT weight out of storage	Used to calculate SIT charges, which are based on weight and time in storage.	TOPS does not have capability to provide date removed from storage when delivery involves a partial out of SIT.
Origin and destination rate area codes	Used to calculate the transportation cost of international shipments.	New TOPS data requirements.
Date shipment picked up	Used to determine effective rates for the shipment.	
Date complete shipment arrived	Used to determine if carrier has submitted a bill prior to providing complete transportation service.	
Storage facility city, state, and county	Used to calculate transportation charges when storage applies.	Rand McNally Mile Maker used to determine miles.

FINDINGS AND ANALYSIS

The DFAS-IN data requirements that TOPS needs to satisfy include:

- ◆ *Air Force transportation account code.* The Air Force has developed a seven-character abbreviated accounting classification that can reference the full accounting classification. If PPSOs used the ATAC, DFAS-IN would not need the full accounting classification. However, TOPS does not currently capture the ATAC.
- ◆ *SIT weight into storage.* TOPS captures the weight of the member's property in one of two data fields depending on whether the shipment is split into portions when it goes into storage. If a split shipment goes into storage, TOPS captures the weight in a field called "split portion origin net weight." If a shipment is not split, TOPS considers data element "origin net weight" as the SIT weight going into storage. DFAS-IN requires TOPS to examine both of those fields and complete a single field that shows the weight going into storage.
- ◆ *SIT weight out of storage.* Similar to SIT weight into storage, TOPS captures the data indirectly but does not have a single field useful to DFAS-IN. If a partial delivery exists, the weight out of storage is captured in a field called "delivery weight." If no partial delivery exists, the weight out of storage is assumed to be data element "origin weight." To compound the situation, a TOPS software problem prohibits the user from entering delivery weight when a partial delivery out of SIT is ordered. DFAS-IN requires TOPS to use a single field that shows the weight removed from storage.
- ◆ *Extended days temporary storage authorized.* A PPSO authorizes a specific number of days that a member can have temporary storage service at Government expense. TOPS captures the original authorization and transmits it to WHIST. However, if a PPSO later extends the authorization, it does not transmit the updated information from TOPS to WHIST, so it is not available to DFAS-IN.
- ◆ *Correction notice information.* The PPSOs use TOPS to update several data elements electronically via a Standard Form (SF) 1200, Correction Notice. Those data elements include code of service; member's rank; extra pickup and delivery city, county, and state; pickup and delivery city, county, and state; MDC; NMF; and TAC. If those data elements are corrected after a PPSO "books" (assigns) the shipment to a carrier, they are not transmitted to WHIST. In addition, MTMC and DFAS-IN do not have an agreement that WHIST would provide the data.

The DFAS-IN requires data to support some transportation operations that are planned by the TOPS-PM but not currently available. Those operations include shipment diversion; shipment termination (reshipment); consolidated shipments; long delivery out of storage; and temporary storage at origin. The

data requirements associated with those operations are not listed in Table 1 and need to be finalized between MTMC and DFAS-IN.

RECOMMENDATIONS

Our recommendations involve enhancing the TOPS applications software and the programs that extract data from TOPS and transmit it to WHIST:

- ◆ *TOPS system enhancements.* We recommend the TOPS-PM expand the capability of TOPS to provide DFAS-IN with the required ATAC, SIT weight into storage, and SIT weight out of storage data; and enhance the TOPS data extraction routines to provide those data along with the extension on the number of days temporary storage is authorized and correction notice information. We also recommend DFAS-IN enhance its agreement with MTMC to call for WHIST to provide the additional required data.

Exchange of Data Between TOPS and WHIST

OVERVIEW

Our review of the programming script that extracts data from TOPS and transmits it to WHIST uncovered a number of problems. In order to describe those problems, we first describe the information exchange process between those two systems.

CURRENT INFORMATION EXCHANGE PROCESS

From the time a Military Service member receives change-of-station orders until the member's property arrives at destination, WHIST receives several transactions of different data depending on the stage of the shipment process.

PPSOs enter information pertaining to the member's orders into TOPS, including social security number (SSN); orders number; orders date; member's name and grade; type of orders; accounting classification; and new duty station. Entry of the SSN and orders number trigger the transfer of data from TOPS at the origin PPSO to WHIST. That transfer takes place at the end of the work day.

Once a carrier is selected and accepts the shipment, the shipment is considered booked. The origin PPSO transmits the booked shipment data to WHIST via TOPS. Booked shipment data includes origin and destination GBLOC, pickup address, delivery address, code of service, carrier code, and GBL number.

After a carrier picks up the shipment, it has seven days to return paperwork to the origin PPSO. The carrier supplies the PPSO with origin weight information and the date it picked up the shipment. Other data available to WHIST at this point in the shipment process includes declared valuation amount,

additional pickup address, and days SIT temporary storage authorized. These data are transmitted from TOPS to WHIST at the end of every work day for all records with an origin net weight.

Another transmission is sent to WHIST when the complete shipment arrives at destination. Data included in that transmission are date complete shipment arrived, additional delivery address, delivery address, and days SIT temporary storage authorized. Those data are transmitted electronically to WHIST only if the destination PPSO acknowledges shipment arrivals using TOPS.

Other transmissions from TOPS to WHIST include additional service data, reweigh data, and SIT information. Additional service data, which includes information on other than transportation service, consists of service item number and identifier, number of service units performed, and date service performed, among others. The transmission to WHIST from TOPS is triggered at the end of the work day whenever the PPSO enters date service performed and number of service units into the shipment record. The carrier submits service information on Department of Defense (DD) Form 619, Statement of Accessorial Services Performed. The carrier has 14 days from delivery to provide that information to the destination PPSO.

The carrier provides all reweigh data. It is responsible for reweighing all shipments when ordered to do so and supplying certified tickets showing shipment weight to the destination PPSO. The carrier has 14 days following delivery to return reweigh tickets to the PPSO. Reweigh data, which includes the reweigh net weight, is currently transmitted from TOPS to WHIST whenever the PPSO creates a DD Form 1671, a reweigh report that is mailed to DFAS-IN and MTMC.

SIT information, such as SIT control number, date placed in storage, date removed from storage, and storage facility address, is transmitted from TOPS to WHIST on the day the shipment is placed into storage and again when the shipment is removed from storage.

FINDINGS AND ANALYSIS

Our review of the information exchange process between TOPS and WHIST uncovered two problems with the programs that extract data from TOPS and another problem with DoD policy. These problems are described below.

The trigger that initiates the transmission of additional service data from TOPS to WHIST includes date performed and number of units. The date the service is performed has little value to DFAS-IN compared to the item number together with the number of units. DFAS-IN requires the latter data even if date performed is missing.

The printing of DD Form 1671 initiates the transmission of reweigh data. Many PPSOs are not printing that form because the data are available through

TOPS and DFAS-IN seldom uses it to make payments. (Fort Bragg has not printed a DD Form 1671 for two years.) WHIST receives reweigh information through TOPS only when the DD Form 1671 is printed.

The timing of the availability of data presents a major problem for DFAS-IN. Current regulations give DFAS-IN 30 days to pay the carrier, but the carrier has up to 14 days to return critical paperwork to the destination PPSO for entry into TOPS. Almost half the time that DFAS-IN has to pay the carrier could be consumed by the carrier, particularly if it uses EDI to submit invoices.

RECOMMENDATIONS

Our recommendations fall into two categories:

- ◆ *TOPS system enhancements.* The TOPS-PM should change the trigger that initiates transmissions of additional service data to WHIST from date performed and number of units to item number and number of units. TOPS-PM should also change the trigger that initiates transmissions of reweigh data from the printing of a DD Form 1671 to the entry of reweigh gross or net weight.
- ◆ *Policy changes.* MTMC and DFAS-IN should propose policy changes to require the carrier to submit supporting documentation to the PPSO before it submits a bill to DFAS-IN. Such a change may require changes to sections of the Code of Federal Regulations that regulate when a carrier may bill for services. This change would improve the timeliness of data available to WHIST and give DFAS-IN more time to authorize payment. It would also improve the percentage of carriers returning required paperwork (see discussion on reweigh and origin net weight in the following subsection). MTMC and DFAS-IN should also relieve PPSOs of the obligation to process DD 1671s. The use of TOPS and its ability to distribute reweigh data makes the form obsolete.

Missing or Inaccurate Data from PPSOs

OVERVIEW

Our review of the TOPS data from the seven PPSOs revealed a number of problems with DFAS-IN's data requirements. The most prominent problems occurred with

- ◆ additional (accessorial) service data,
- ◆ reweigh net weight data,
- ◆ address data,

- ◆ SIT data,
- ◆ origin net weight data, and
- ◆ accounting classification data.

In the remainder of this subsection, we examine each of these problems and recommend corrective actions.

ADDITIONAL (ACCESSORIAL) SERVICE DATA

Background

Additional services comprise those that a carrier performs in addition to the linehaul transportation services. Examples of such services include packing and unpacking; carrying a piano or organ; traversing excessive distances or flights of stairs; attempted pickups and deliveries; and a variety of extra labor requirements. The carrier records all additional services on a DD Form 619, which it then submits to the PPSO. The member or PPSO verifies the carrier's entries and certifies them by signing the form. Subsequent DD Forms 619, which may be prepared in connection with a shipment, are forwarded by the carrier to the PPSO ordering the services. Additional services data that DFAS-IN uses include service item number and alpha identifier, number of service units performed, and date service performed.

The EDI operating concept calls for DFAS-IN to pay for all PPSO-ordered and carrier-performed services. Any service not identified by the PPSO through TOPS forces DFAS-IN to request the carrier to submit the DD Form 619 in support of its electronic invoice. The submission of paper DD Form 619s from carriers defeats a DoD objective of paperless invoicing. In addition, the personal property carrier industry has indicated it would not support combined EDI and paper operations over the long term if payment timing is based on submission of the DD Form 619 or if additional manual processing is required of the DD Form 619.

Analysis and Findings

Our analysis shows that only 14 percent of additional service item numbers are available through TOPS and those constitute reweigh and storage items that are automatically supplied by TOPS.⁴ The reason for such a poor performance is that PPSOs are not required to enter additional service data into TOPS. Table 2

⁴Item number, date performed, and number of units performed for item 125 (reweigh) and item 145 (storage) are not essential payment data. Other data, such as reweigh weight, weight entered into storage, weight removed from storage, and storage dates, already provide the necessary costing data. The existence of reweigh and storage weights supplied by the PPSO indicates the PPSO ordered the service and the carrier performed it.

shows the results of our data analysis broken out by services performed at origin and destination. Most member-certified services occur at origin and most storage and reweigh services occur at destination.

Table 2.
Data Quality – Additional Service Data

PPSO	Origin services				Destination services			
	No. of GBLs	No. of additional services paid by DFAS-IN	No. of additional services reported via TOPS	Percent of services missing from TOPS	No. of GBLs	No. of additional services paid by DFAS-IN	No. of additional services reported via TOPS	Percent of services missing from TOPS
APAT	13	77	2	97	9	50	8	84
BKAS	4	17	0	100	18	61	17	72
CFFQ	6	38	0	100	6	101	17	83
JEAT	8	34	2	94	15	53	11	79
KKFA	4	26	0	100	16	51	12	76
Total	35	192	4	98	64	316	65	79

Note: Combining origin services with destination services shows that an average of 86 percent of all additional services are missing from TOPS. The calculation is $1 - [(4 + 65) \div (192 + 316)] = 0.86$.

Using EDI to audit and pay additional services requires two actions. One, the additional service data must be transmitted to DFAS-IN electronically. Two, the services must be approved by the PPSO or certified by the member. DoD has four alternatives for resolving this data quality problem. It could

- ◆ abandon the use of EDI,
- ◆ require DFAS-IN to enter DD Form 619 data submitted by the carrier,
- ◆ reengineer its personal property business practices to minimize the number of additional services,
- ◆ require the Military Services to submit additional services data through TOPS, or
- ◆ solicit the carrier industry to enter additional service data.

Abandoning the use of EDI is not a viable alternative. The DoD is already committed to replacing its paper-based business processes with electronic exchanges of information. We estimate that submission of EDI invoices will save

DFAS-IN the equivalent of 10 people throughout operations, particularly in mail receiving, sorting, data preparation, key entry, preaudit, and microfiche areas.⁵

Requiring DFAS-IN to enter DD Form 619 data is not a viable alternative. We previously indicated carriers are not likely to support parallel operations. If so, this alternative is synonymous with abandoning the use of EDI.

Reengineering the personal property business practices to minimize the number of additional services is a reasonable alternative. (MTMC has formed a reengineering team to review the DoD's personal property business practices.) In an environment of shrinking budgets and personnel, any alternative that reduces data requirements warrants close attention. The DoD currently accepts 138 domestic additional service charges, including 19 packing charges, 11 bulky article charges, and 22 bridge or toll charges. It could reduce the number of additional services by replacing the complex transportation costing mechanism with a single factor (origin GBLOC to destination GBLOC) rate or a fixed cost that includes standard services such as bridge charges.⁶ In addition, other services, such as bulky items, could be consolidated into fewer categories. Alternatively, the industry may not support such a dramatic departure from current business practices. It would also require one to three years to implement the changes.

Requiring the Military Services to enter the data is not likely to be favorably received. Even though each shipment has an average of only five additional services, the PPSOs may not be able to support the increased workload because they are facing cuts in personnel and other resources. This alternative is likely to be practical only if the reengineering alternative succeeds in reducing the data entry burdens of the PPSOs. As a consequence, we consider it a longer term solution.

Soliciting the carrier industry to enter additional services data and then submit them with their electronic invoices is an attractive short-term alternative. The carrier industry has already indicated support for this alternative in previous joint DoD-industry work groups. In addition, various data elements in support of this alternative, such as service item number and number of units performed, have been added to the DoD's implementation conventions for the American Standards Committee (ASC) X12 Transaction Set 859, Generic Invoice.

The problem with this last alternative (having carriers enter the additional data) is that DFAS-IN cannot determine if the carrier is electronically transmitting the same data certified on the DD Form 619. We understand the carriers are willing to batch paper DD Form 619s and send them to DFAS-IN to support audits, as long as the prompt payment period begins with submission of the electronic invoice. (DFAS-IN has been promoting the idea that the prompt payment

⁵Estimated from information provided in LMI Report AL711R1, *An Electronic Future for Defense Information*, January 1988.

⁶A single factor rate is based on weight alone since mileage is inferred by defining the origin location (GBLOC) and destination location (GBLOC). A fixed cost could be provided by a carrier prior to shipment as a "hard estimate."

clock could begin sooner for carriers because of the quickness of electronic submissions.) Under such a concept, since the paper DD Form 619, in most cases, would arrive at DFAS-IN after payment, DFAS-IN would audit only that the carriers used the correct rates and extended charges correctly, ignoring whether the number of service units submitted electronically matches the number of units on the DD Form 619. DFAS-IN would pass all DD Form 619s to GSA for use during the postpayment audit process. While DoD would lose some funds to postpayment audits, this alternative would provide DoD with a short-term practical solution. This alternative would also require some modifications to DTRS.

Recommendations

We recommend DFAS-IN pursue, in the short term, the option whereby carriers submit DD Form 619 data electronically. Over the long term, we recommend MTMC work toward reducing the number of additional services and soliciting PPSOs to enter the remaining data. The combination of these alternatives will support DFAS-IN's continued pursuit of EDI.

Our recommendations for improving the quality of additional service data fall into three categories:

- ◆ *Business process changes.* DFAS-IN, working closely with the personal property carrier industry, should solicit carriers to submit DD Form 619 information electronically with their EDI invoices. It should also propose changes to carrier billing instructions in support of this action. MTMC's personal property reengineering team should propose revisions to the DoD's rate solicitation practices to reduce the number of additional services.
- ◆ *DTRS system enhancements.* DFAS-IN should enhance DTRS to receive DD Form 619 information electronically from carriers.
- ◆ *Policy changes.* MTMC should sponsor a change to the PPTMR that directs PPSOs to enter additional services information into TOPS.

REWEIGH NET WEIGHT DATA

Background

The DoD 4500.34R, Personal Property Traffic Management Regulation (PPTMR), cites the circumstances under which personal property shipments are to be reweighed. They include

- ◆ property owner's request,
- ◆ doubt about the correct weight of the shipment, or

- ◆ PPSOs knowledge that the shipment exceeds the property owner's maximum weight allowance.

The PPTMR further requires PPSOs to order reweighs, on a quarterly basis, of 10 percent of all CONUS (including Alaska) household goods and unaccompanied baggage shipments. Carriers are then required to provide reweigh weights to PPSOs on weight tickets obtained from certified scales within 14 days of delivery.

Reweigh weight information is important to DFAS-IN because carriers are required to bill transportation and storage charges on the lesser of either the origin or reweigh weight. The reweigh weight is also used to determine whether a reweigh additional service charge applies. Without reweigh information, the Government is vulnerable to possible carrier overcharges.

Analysis and Findings

During our review of 1,974 TOPS reweigh records, 38 percent of the shipments with an ordered reweigh service had no reported reweigh net weight. (However, as Table 3 shows, the 1994 data in our sample was substantially better than the 1993 data.)

Table 3.
Data Quality – Reweigh Net Weight Data

PPSO	1993 data			1994 data		
	No. of reweigh records	Missing reweigh net weight		No. of reweigh records	Missing reweigh net weight	
		No.	Percent		No.	Percent
AANL	7	7	100	25	25	100
APAT	6	5	83	2	2	100
BKAS	242	211	87	369	185	50
CFFQ	65	64	98	69	42	61
JEAT	131	56	43	123	68	55
KKFA	194	111	57	667	249	37
LFMT	16	12	75	58	29	50
Total	661	466 ^a	70	1,313	600 ^a	46

Note: The weighted average of combining the 1993 and 1994 data samples and excluding shipments still in storage is 38 percent. The calculation is $(466 + 600) \div (661 + 1,313) \times (1 - .29) = 0.38$.

^aWe assume that 29 percent (see SIT analysis) of these records are still in storage and therefore reweigh net weight may not be available.

During our site visit, we found 50 percent of the paper files indicated that a reweigh was ordered but the reweigh tickets were missing. We also discovered

that roughly 30 percent of those shipments were still in storage, leaving approximately 35 percent of the paper files with missing reweigh tickets.

Aside from those shipments still in storage, which would not necessarily have reweigh tickets, we believe there are three possible reasons for TOPS not having reweigh net weights. They are the

- ◆ failure of the carrier to return certified reweigh tickets to PPSO within the required 14 days,
- ◆ failure of the PPSO to order reweighs for requested service, and
- ◆ failure of the PPSO to process the reweigh tickets.

We have no evidence to suggest that any of these possible reasons may be dominant, but experienced DoD personnel believe that a combination of all three causes is most likely.

During the site visit, we also discovered some TOPS reweigh net weights did not match those documented by reweigh tickets for the same shipments. Upon further investigation, we discovered that PPSOs mistakenly entered partial delivery weight out of storage into the TOPS reweigh field.

Recommendations

Our recommendations for improving the quality of reweigh net weight data fall into three categories:

- ◆ *TOPS data entry requirements.* PPSOs should ensure that
 - ▶ requested reweighs are actually ordered,
 - ▶ reweigh tickets are processed properly,
 - ▶ DD Form 1780, Shipment Evaluation and Inspection Record, is used to provide carrier performance information for carriers not performing reweighs when ordered or not returning documentation to PPSOs.
- ◆ *PPSO training.* TOPS-PM should ensure PPSO personnel are trained to enter reweigh data, especially in situations where partial deliveries out of SIT are ordered. When partial deliveries exist, DFAS-IN requires a single reweigh weight for the entire shipment before it can pay the carrier.
- ◆ *TOPS system enhancements.* TOPS-PM should develop a management report to show the frequency of missing reweigh net weights. It should distribute the report to the PPSOs, which would then determine the causes for the missing data.

ADDRESS DATA

Background

One of the fundamental elements for any personal property shipment is address information. Individual circumstances sometimes require military members to maintain their personal property at more than one address. When that is the case, a shipment may be picked up from or delivered to both a primary and one or more additional addresses. In addition, members may require storage of personal property at origin or destination. Address data includes city, county, and state names associated with primary pickup and delivery locations; additional pickup and delivery locations; and SIT facility locations. DFAS-IN uses the data to determine transportation miles via Rand McNally's Mile Maker system – the industry mileage standard – when billing for transportation charges. The data are also used to determine rates when additional transportation charges apply or a shipment is moved less than 500 miles. Finally, the data are used to determine charges for addition services that require labor. All labor rates are based on location of service.

Analysis and Findings

The requirement for free-form entry of city and county names creates an administrative burden for the PPSOs. In addition, data entry mistakes are common. Using our test data, DFAS-IN found that 19 percent of TOPS city names did not match names in Rand McNally's Mile Maker. Names are easily misspelled; neither the PPSOs nor Mile Maker uses a standard format for entry of military installations; and Mile Maker uses the abbreviations of some city names. For example, we found 10 different versions of Warner Robins Air Force Base, while the Air Force Academy was referred to in seven different ways. Mile Maker lists Camp Lejeune as MCB Camp Lejeune, while PPSOs frequently use Camp Lejeune. Mile Maker lists Baileys Crossroads, Va., as Bailey XRoads, a unique spelling, because of an 18-character field size limitation. Table 4 shows the results of DFAS-IN's Mile Maker test. Of the TOPS city names that did not match Mile Maker, approximately 80 percent were misspelled, 10 percent were Military installations, and 10 percent were Mile Maker abbreviations.

Our review of 8,638 inbound records (shipment records created or edited at destination) showed that 9 percent were missing the county in the delivery address. Upon further investigation, we found this situation occurs only when destination PPSOs are required to create initial shipment records because the origin PPSOs failed to do so. Since all domestic PPSOs use TOPS, this problem should rarely occur if all PPSOs use the outbound module of TOPS, which creates a shipment record and transmits it to the destination PPSO.

Table 4.
Data Quality — City Name Data

PPSO	No. of TOPS records subjected to Mile Maker	No. of records with TOPS — Mile Maker City name mismatch	Percent nonmatch
APAT	56	10	18
BKAS	56	26	46
JEAT	58	7	12
KKFA	79	12	15
LMFT	64	4	6
Total	313	59	19

Note: Both the pickup and delivery city name constitutes a single record.

One of the test activities routinely abused the delivery address city field by attaching a person's name or phone number. Since an additional field for administrative information has recently been added to TOPS, this problem should be resolved.

We examined 694 additional pickup and delivery address records and found that 36 percent were incomplete or inaccurate. The problems included missing city, county, or state information; miscellaneous characters in the city field; and additional pickup address information entered into additional delivery information fields or vice versa. Table 5 shows the results of our analysis.

As a result of our site visit, we concluded that whenever a shipment is missing additional address data, the PPSO failed to enter the data into TOPS. We also found that additional address information was sometimes typed on the GBL outside of TOPS. We were unable, however, to determine whether the PPSO or carrier typed the additional address information on the GBL. When the city and state were present, but not the county, the property owner probably did not know the name of the county. When that occurs, the PPSO bypasses the county data field.

Miscellaneous characters generally occur because PPSOs do not know how to delete additional addresses from TOPS. Some PPSOs superimpose the word cancel or a similar message over the city data. Nonetheless, DFAS-IN's system will assume the address is valid and attempt to extract mileage from Mile Maker.

Our review of 5,828 SIT records in TOPS revealed that 10 percent of the storage facility addresses had missing or inaccurate county data. About 35 percent of the invalid storage facility addresses were missing county data, while the remaining had what appeared to be zip codes in the county field. Table 6 shows the details of our analysis. During our site visit, we discovered that many of these errors were caused by inaccurate local storage facility location reference files.

Table 5.
Data Quality – Additional Address Data

PPSO	1993 data			1994 data		
	No. of additional address records	Invalid records		No. of additional address records	Invalid records	
		No.	Percent		No.	Percent
AANL	23	4	17	42	18	43
APAT	20	8	40	35	13	37
BKAS	44	27	61	81	38	47
CFFQ	13	2	15	34	12	35
JEAT	79	24	30	112	25	22
KKFA	21	9	43	90	39	43
LFMT	41	14	34	59	16	27
Total	241	88	37	453	161	36

Note: Invalid records include the following: missing city, state, and county information (59 percent of invalid records); containing miscellaneous characters (17 percent of invalid records); missing county information (12 percent of invalid records); additional pickup addresses entered in delivery address fields or vice versa (12 percent of invalid records). The PPSO listed may not be responsible for invalid additional pickup data in inbound records.

Table 6.
Data Quality – Storage Facility Address Data

PPSO	1993 data			1994 data		
	No. of SIT records	Invalid county data		No. of SIT records	Invalid county data	
		No.	Percent		No.	Percent
AANL	26	14	54	201	65	32
APAT	70	50	71	16	7	4
BKAS	613	161	26	1,031	24	2
CFFQ	160	0	0	206	0	0
JEAT	609	0	0	651	8	1
KKFA	622	35	6	1,040	145	14
LFMT	225	23	10	358	29	8
Total	2,325	283	12	3,503	278	8

Note: Invalid county data includes records missing county field and county field filled with a zip code. The weighted average of combining the 1993 and 1994 data samples is 10 percent. The calculation is $(283 + 278) \div (2,325 + 3,530) = 0.10$.

Recommendations

The DoD can realize the greatest improvement in the quality of personal property address information by eliminating the need for free-form city, state, and county names. It can achieve that improvement by using a single factor transportation rate based on origin to destination GBLOC or a fixed cost estimate determined prior to each shipment. We previously recommended such an action to improve the quality of additional service data.

The carrier industry has developed a strong lobby to counter many proposed changes to DoD's rules and regulations. If MTMC is not successful in changing DoD's business practices, the only recourse over the long term to improve the quality of address data is for the Military Services to install Mile Maker at all TOPS sites. Use of Mile Maker at the origin PPSOs should eliminate all misspelled and abbreviated cities, which constitute about 90 percent of the city name problem. Since the DoD's practices for naming military installations may not match that of Mile Maker, the use of Mile Maker alone will not improve the quality of entering military installations.⁷ The TOPS-PM will need to create a cross-reference file linking the standard DoD naming convention to the installation name resident in Mile Maker. (DFAS-IN can provide the TOPS-PM a list of military installations resident in Mile Maker.)

In the near term, data validation enhancements to TOPS would improve the quality of address data. TOPS should require the entry of county information when a city is entered and designate additional address data as mandatory if an additional pickup or delivery is requested.

Finally, the PPSOs need to learn how to delete additional addresses.

In summary, our recommendations for improving address data quality fall into three categories:

- ◆ *PPSO training.* The TOPS-PM should prepare and distribute training material that describes the process for deleting additional addresses from TOPS when an extra pickup or delivery is canceled.
- ◆ *TOPS system enhancements.* The TOPS-PM should develop a cross reference capability between standard military installation names and Mile Maker names. It also should modify TOPS to require county information when the city is entered and city, county, and state information when an additional address record is created.
- ◆ *Business process changes.* MTMC should sponsor changes to the way carriers submit their rates. Rates for transportation line haul service could be based on point-to-point (GBLOC to GBLOC) bids or firm cost estimates could be offered by carriers for each shipment.

⁷ Mile Maker matches names by "recognizing" alphabetical strings. If a PPSO enters an installation name and the first few letters do not match those in Mile Maker's installation name, Mile Maker will not retrieve acceptable choices.

SIT DATA

Background

SIT or temporary storage occurs in connection with a linehaul movement of personal property. It is normally used at destination when a shipment arrives before the property owner has established a delivery address. It may also be used at origin or at an intermediate point when a PPSO considers temporary storage to be in the best interest of the DoD and owner. Approximately 50 percent of all personal property shipments undergo some period of temporary storage, most often at destination

Accurate and current SIT information is essential for DFAS-IN to calculate or confirm SIT-related warehouse (based on time and weight in storage) and handling charges.

Analysis and Findings

Our review of almost 6,000 SIT records in TOPS revealed that 21 percent were missing the date when the property was removed from storage, excluding all shipments still in storage. Table 7 presents the results of our analysis.

During our site visit, we found that TOPS does not provide the PPSOs with the capability to enter that date when delivery from storage involves a partial shipment delivery.

Recommendations

Our recommendation for improving SIT data is provided below:

- ◆ *TOPS system enhancements.* The TOPS-PM should modify TOPS so PPSOs can enter storage data when partial deliveries out of SIT occur.

ORIGIN NET WEIGHT DATA

Background

The DFAS-IN uses the origin net weight to calculate transportation line haul charges for domestic code 1 and code 2 shipments. After the carrier picks up a shipment, it has seven days to weigh the shipment and return the GBL, updated with weight and pickup date information, and the certified weight tickets to the origin PPSO. The pickup date is used in conjunction with the origin net weight to calculate transportation changes; it identifies the effective date of a carrier's rates.

Table 7.
Data Quality – SIT Data

PPSO	1993 data			1994 data		
	No. of SIT records	Missing date removed from storage		No. of SIT records	Missing date removed from storage	
		No.	Percent		No.	Percent
AANL	26	26	100	201	201	100
APAT	70	53	76	16	14	9
BKAS	613	80	13	1,031	246	24
CFFQ	160	16	10	206	33	16
JEAT	609	230	38	651	650	100
KKFA	622	7	0	1,040	89	9
LFMT	225	19	8	358	52	15
Total	2,325	431	19	3,503	1,285	37

Note: Seventy-one percent of shipments with records missing the date when the property was removed from storage were confirmed to be removed from storage. The weighted average of combining 1993 and 1994 data samples and excluding shipments still in storage is 21 percent. The calculation is $(431 + 1,285) \div (2,325 + 3,530) \times .71 = 0.21$.

Analysis and Findings

Based upon a review of more than 9,000 outbound shipment records, we found that 5 percent showed either no origin net weight, a negative origin net weight, or a zero origin net weight. Most of those shipments did not have any weight information. In addition, if the origin net weight was missing from a shipment record, the actual pickup date was also frequently missing. Other data that accompanies origin net weight during the daily TOPS extraction are not transmitted to DFAS-IN when origin net weight is missing. (See the subsection "Exchange of Data Between TOPS and WHIST.") Table 8 presents the results of our analysis.

In a recent test, DFAS-IN found that 13 percent of TOPS records showed a value for origin net weight that differed from the net weight the carriers reported on the GBLs they presented to DFAS-IN for payment. The results of DFAS-IN's analysis is shown in Table 9.

Our site visit confirmed that missing, zero, or incorrect origin net weight data occurs because the carriers fail to return completed GBL and weight tickets to the origin PPSOs. In cases where the TOPS record shows a weight different from that on the GBL, the PPSO enters either zero or the estimated weight if the carrier fails to return required documentation. Negative net weights occur when the PPSO enters gross weight in the tare weight field and tare weight in the gross weight field. When only gross and tare weights are entered, TOPS automatically calculates net weight by subtracting tare weight from gross weight.

Table 8.
Data Quality – Origin Net Weight Data

PPSO	1993 data			1994 data		
	No. of base records (outbound)	Invalid records		No. of base records (outbound)	Invalid records	
		No.	Percent		No.	Percent
AANL	182	8	4	242	9	4
APAT	284	9	3	554	27	5
BKAS	992	25	3	1,563	93	6
CFFQ	144	0	0	200	2	2
JEAT	815	81	10	1,207	101	8
KKFA	588	8	1	1,013	18	2
LFMT	471	21	4	789	44	6
Total	3,476	152	4	5,568	294	5

Note: Invalid records include missing, negative, or zero net weight. The majority, 73 percent, of the invalid records were missing net weight.

Table 9.
Data Quality – Origin Net Weight Data (Comparison with GBL)

PPSO	No. of GBLs	Invalid records	
		No.	Percent
APAT	12	1	8
BKAS	12	–	–
CFFQ	12	2	17
JEAT	11	3	27
KKFA	10	1	10
LFMT	10	2	20
Total	67	9	13

Note: Invalid records include those records with origin net weight greater than zero reported by TOPS not matching the weight carriers reported on GBLs.

Recommendations

Like our recommendations for improving reweigh data quality, we believe a management report identifying aged shipments missing origin net weight would improve the overall quality of that field in TOPS. The PPSOs could use such a report to identify carrier performance problems. If the problems persist, they could then complete DD Form 1780, which is used to submit carrier performance

information to MTMC. PPSO personnel also need to be made aware of the importance of entering accurate information in the origin net weight field.

Finally, the TOPS-PM could incorporate additional edits in TOPS to prevent the entry of unreasonable data into weight fields. For example, tare weight should always be smaller than gross weight because gross weight includes tare and net weights.

Our recommendations for improving the quality of origin net weight data fall into three categories:

- ◆ *TOPS data entry requirements.* PPSOs should monitor the timeliness of carriers returning the origin documentation and complete the carrier performance evaluation, DD Form 1780, when their performance does not satisfy DoD's requirements.
- ◆ *PPSO training.* TOPS-PM should train PPSO personnel on the importance of not entering zero or estimated weights when carrier information is not available.
- ◆ *TOPS system enhancements.* TOPS-PM should develop a management report that identifies all shipments with missing, zero, or negative origin net weight. TOPS-PM should also incorporate validation edits in TOPS, preventing the entry of unreasonable data.

ACCOUNTING CLASSIFICATION DATA

Background

An accounting classification provides the information needed to enter a transaction into a DoD accounting system. It is a vital element of information found on every set of orders that authorizes a DoD member to ship personal property. Embedded in the classification is information pertaining to fiscal responsibility — which organization will pay for the move. The accounting classification, in its unabridged form, is comprised of a lengthy series of alpha and numeric characters. However, the Military Services have adopted abbreviated codes for simplicity and brevity (MDC, ATAC, TAC, and NMF). DFAS-IN would prefer to receive abbreviated forms of accounting classification numbers from PPSOs, as indicated previously in Table 1.

Although we were unable to confirm during the test, we believe it is relatively easy to make data entry mistakes when typing a long string of unfamiliar characters from members orders into TOPS. This conclusion formed the basis for our recommendation.

Recommendations

We believe the TOPS accounting classification data will be improved if the following action is taken:

- ◆ *TOPS system enhancements:* The TOPS-PM should modify TOPS so it has the capability to validate accounting classification information using reference files supplied by DFAS-IN.

IMPACT OF PERSONAL PROPERTY DATA QUALITY ON DTRS IMPLEMENTATION

Introduction

In this section, we address how the various problems with personal property data affect the implementation of DTRS, which is scheduled for the second quarter of FY95. While we believe DTRS should be implemented in the short term, DoD needs to take a number of corrective actions before then. In addition, DFAS-IN should permit only a few carriers to submit their personal property invoices electronically, but exclude storage-related bills until longer term corrective actions are completed.

We also summarize in this section the proposed corrective actions in two ways: those actions required in the short term in order to implement DTRS, and those actions that will take longer to implement but would accommodate EDI expansion and eliminate manual intervention at DFAS-IN.

Data Deficiencies

PPSO USE OF TOPS

We noted earlier that one PPSO stopped using the inbound module of TOPS to process shipments arriving at the destination during the test period. If we can assume that a similar percentage of PPSOs (14 percent) would not use TOPS, then DFAS-IN should expect to receive approximately 100 invoices each day with incomplete TOPS shipment information.⁸ Of the 100 bills, almost 10 percent would be received electronically, assuming that initial DTRS production is limited to DFAS-IN's two test carriers, Allied Van Lines and United Van Lines. If these assumptions hold, DFAS-IN would be forced to process almost 100 GBLs per day manually.

⁸The calculation is 175,000 annual code 1 and code 2 shipments x 0.14 ÷ 250 days/yr. = 98 shipments/day. Some shipment information, including origin net weight, pickup addresses, and member information, will be available from origin PPSOs.

UNPLANNED DFAS-IN DATA REQUIREMENTS

We identified unplanned DFAS-IN data requirements in three areas: SIT-related data, including SIT weight into storage, SIT weight out of storage, and extended days SIT temporary storage is authorized; ATAC; and correction notice information. We also identified data requirements associated with operations that are planned by the TOPS-PM, but are currently not available to DFAS-IN. They include diversion, reshipment, consolidated shipments, long delivery out of storage, and temporary storage at origin.

When DTRS becomes operational, DFAS-IN will not need to be concerned with the SIT-related data. Current billing instructions call for SIT agents to continue submitting SIT-related bills via paper until further notice. We believe that notice should not be forthcoming until TOPS-PM modifies TOPS to accommodate DFAS-IN's SIT requirements and DoD adopts an operating concept to cover the paper certificate of waiver requirement.⁹ In addition, DFAS-IN's billing instructions should specify that carriers bill via paper for diversion, reshipments, and consolidated shipments until those capabilities are available through TOPS.

The absence of ATAC data should not affect the implementation of DTRS because the Air Force PPSOs also enter the full accounting classification into TOPS and only about 9 percent of personal property shipments include the ATAC. However, DFAS-IN will need to resolve invalid full accounting classification data manually until that problem is corrected. The problem could be corrected temporarily by requesting PPSOs to enter the ATAC into the full accounting classification data field.

The absence of correction notice information also should not affect the startup of DTRS. Carriers that are underpaid because of a data correction will eventually submit a paper supplemental bill and proof of charges. In addition, DFAS-IN has the capability to adjust future supplemental bills for overpayments made to carriers in response to original EDI bills. Again, DFAS-IN will not be able to eliminate the manual processing of some paper correction notices until this problem is corrected.

EXCHANGE OF DATA BETWEEN TOPS AND WHIST

We found a problem in the exchange of data between TOPS and WHIST that prevents all reweigh information from reaching DFAS-IN. We believe DFAS-IN should not implement DTRS before this data problem is corrected. The problem can be corrected in the short term by modifying the software that extracts data from TOPS to be triggered on data entry of reweigh net or gross weight.

⁹ A certificate of waiver is required from all agents when billing for SIT services. LMI, under a separate effort, is developing an EDI operating concept for waiver submission.

ADDITIONAL SERVICE DATA

We also found PPSOs are not entering accessorial services data into TOPS. Assuming DFAS-IN implements the alternative recommended in this report — carriers submit DD 619 information electronically — the current problems with additional service data from PPSOs should not affect the implementation of DTRS. However, DoD will lose some prepayment audit capability until this problem is corrected. Should DFAS-IN choose not to enhance DTRS to accommodate the recommended alternative, it can expect to process all invoices from carriers manually.

REWEIGH NET WEIGHT DATA

We further reported that 38 percent of the reweigh records in TOPS are missing reweigh net weight. We believe some of those situations occur because carriers are not submitting reweigh information to the PPSOs. As a result, DFAS-IN has no responsibility for carriers failing to return reweigh tickets to PPSOs and the implementation of DTRS will not be affected.

In other situations, however, DFAS-IN could receive reweigh charges from carriers electronically but no reweigh net weight from PPSOs. DFAS-IN would then be forced to expend manual resources obtaining reweigh tickets from carriers. The majority of the reweigh charges are likely to be processed by storage agents and submitted via supplemental billing. We do not believe the number of these situations, given only two start-up carriers and no EDI storage agent bills, should restrict the implementation of DTRS, but it should limit EDI expansion until the deficiency is corrected.

ADDRESS DATA

We reported that 19 percent of the city names received from TOPS did not match those in Rand McNally's Mile Maker. We also reported that 36 percent of additional address data and 10 percent of storage facility address data were missing either city or county information.

We do not see a short-term solution to the misspelling of city names. We estimate that DTRS would reject between 100 and 150 shipments per day because of problems with addresses.¹⁰ Those problems should continue until the DoD re-engineers its business practices to eliminate the need for free-form address data or until Mile Maker is implemented at all PPSOs with TOPS.

We also believe the TOPS system needs to be modified to require either the entry of additional address data when an additional pickup or delivery record is created or the entry of county information when storage facility city is entered.

¹⁰The calculation is $175,000 \text{ annual shipments} \times 0.19 \div 250 \text{ days} = 133 \text{ shipments per day}$.

These actions are not major but they will result in substantial improvements in determining transportation linehaul costs.

SIT DATA

We also reported that 21 percent of SIT records are missing date removed from storage information. However, the problems with SIT data should not affect the implementation of DTRS if DFAS-IN limits EDI initially to original bills only. See previous discussion in Unplanned DFAS-IN Data Requirements subsection.

ORIGIN NET WEIGHT DATA

We found that 5 percent of TOPS shipment records are either missing origin net weight, show a negative weight, or show a zero net weight; and 13 percent of the records report an origin net weight that differs from that shown on the GBL. Both of these situations will affect DFAS-IN's operations. We estimate the former would result in about 35 shipments per day requiring manual processing.¹¹ We further estimate the latter situation would result in approximately 45 claims per day because DFAS-IN bases its payments on the lower of the TOPS and GBL weights. (We assume half of those payments would result in underpayments to carrier, which would subsequently result in claims.¹²)

ACCOUNTING CLASSIFICATION DATA

Our analysis further assumed that data entry errors may occur when PPSOs enter full accounting classification data. Although unable to substantiate that assumption, we believe those errors will not materially affect the implementation of DTRS because more than half of all personal property accounting classification data that DFAS-IN receives are in the abbreviated MDC format.

Summary of Corrective Actions

SHORT TERM

Only two enhancements to the TOPS system are required before DTRS can be implemented. Those enhancements are

- ◆ modifications to the TOPS-WHIST data extraction program that initiates the transmission of reweigh data when reweigh weights are entered into TOPS (currently unplanned as a TOPS requirement), and

¹¹The calculation is $175,000 \text{ annual shipments} \times 0.05 \div 250 \text{ days} = 35 \text{ shipments per day}$.

¹²The calculation is $175,000 \text{ annual shipments} \times 0.13 \div 250 \text{ days} \div 2 = 45 \text{ shipments per day}$.

- ◆ mandatory entry of county address data when the city field is used and mandatory entry of additional address data when an additional pickup or delivery record is created (planned for TOPS Release 4.11, projected for January 1995).

LONG TERM

Over the long term, however, the DoD will need to take a number of actions to improve the quality of its personal property data before DFAS-IN expands the use of EDI beyond a few start-up carriers and to SIT agent bills. Those actions include TOPS data entry requirements, PPSO training, TOPS system enhancements, policy changes, and business process changes.

TOPS Data Entry Requirements

The problems associated with the PPSOs not following established procedures can be corrected by MTMC requesting the Military Services to direct their PPSOs to comply with established procedures for processing origin and reweigh weight information, to include processing tickets, entering data into TOPS, contacting carriers that fail to return documentation, and completing the DD Form 1780.

PPSO Training

PPSO personnel need additional training on using TOPS. That training should include

- ◆ how to enter reweigh data when partial delivery out of SIT applies (training planned in conjunction with a TOPS software enhancement scheduled for TOPS Release 6.0 projected for October 1995),
- ◆ how to delete an additional pickup or delivery from TOPS, and
- ◆ how to enter origin weight data when weights are not available from carriers (DFAS-IN prefers omitting the data in lieu of entering estimated weight or zero).

These training requirements could be included in announcements from the TOPS-PM to the Military Services.

TOPS System Enhancements

Several enhancements to TOPS should be completed before DFAS-IN expands EDI. They include

- ◆ the addition of several new data requirements including ATAC, SIT weight into storage, SIT weight out of storage, extended days SIT temporary storage authorized, and correction notice information (currently not planned as TOPS data requirements);
- ◆ management reports that identify shipments with missing reweigh and origin net weights (planned for TOPS Release 7.0 projected for March 1996);
- ◆ data entry and processing of the date property is removed from SIT and SIT weight out of storage for partial deliveries from storage to residence (planned for TOPS Release 6.0);
- ◆ edits to validate entry of weight data (currently not planned by the TOPS-PM);
- ◆ installation of Mile Maker at PPSOs (planned for TOPS Release 5.0 projected for June 1995);
- ◆ incorporation of a cross reference between standard military installation names and Mile Maker's military installation names at PPSOs (planned for TOPS Release 5.0);
- ◆ incorporation of a reference file of valid accounting classification numbers in TOPS (currently not planned by the TOPS-PM); and
- ◆ the addition of data requirements that support diversion (TOPS Release 7.0), reshipment (TOPS Release 7.0), consolidated shipments (TOPS Release 5.0), long delivery out of SIT (TOPS Release 6.0), and temporary storage at origin (TOPS Release 7.0).

Policy Changes

The DoD needs to adopt two policy changes before it embraces a fully electronic operating environment for the payment of personal property invoices. Those changes are

- ◆ mandatory use of TOPS by all PPSOs, and
- ◆ requirement for the PPSOs to enter additional service data into TOPS.

Business Process Changes

The most important long-term corrective action is reengineering the DoD's personal property business practices to eliminate the need for free form address information when calculating transportation charges and to minimize the number of accessorial services. MTMC needs to add those requirements to the objectives of its personal property reengineering team.

REPORT DOCUMENTATION PAGE			Form Approved OPM No.0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources gathering, and maintaining the data needed, and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.				
1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE Dec 94		3. REPORT TYPE AND DATES COVERED Final
4. TITLE AND SUBTITLE Improving the Quality of Personal Property Data for the Defense Transportation Payment Program			5. FUNDING NUMBERS C MDA903-90-C-0006 PE 0902198D	
6. AUTHOR(S) W. Michael Bridges, Alfred H. Beyer				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Logistics Management Institute 2000 Corporate Ridge McLean, VA 22102-7805			8. PERFORMING ORGANIZATION REPORT NUMBER LMI- DF301LN7	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Deputy Director for Finance Defense Finance and Accounting Service 1931 Jefferson Davis Highway Arlington, VA 22240-5191			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES Joint sponsor Military Traffic Management Command 5611 Columbia Pike Falls Church, VA 22041-5050				
12a. DISTRIBUTION/AVAILABILITY STATEMENT A: Approved for public release; distribution unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Quality shipment data are the backbone of DoD's operating concept for auditing and paying personal property bills electronically. The Defense Finance and Accounting Service — Indianapolis Center (DFAS-IN) depends on timely and accurate electronic data from Personal Property Shipment Offices to avoid payment of carrier overcharges, payments of interest charges, and manual processing to correct inaccurate data. The current personal property data suffers from a number of problems. This report identifies personal property data deficiencies, discusses their impact on the implementation of DFAS-IN's Defense Transportation Payment System (DTRS), and recommends a course of action for DoD to resolve the problem.				
14. SUBJECT TERMS Personal Property, Defense Transportation, EDI, TOPS, DTRS Transportation Payment Program			15. NUMBER OF PAGES 42	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	